

Homeopathy on the crossroads of traditional and integrative medicine in the Middle-East

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Abstract The Middle-East is characterized by a rich spectrum of complementary and traditional medicine therapies, which are used by patients in parallel with conventional medicine. Indigenous traditional medicine practices in the region focus mainly on herbal medicine and far less on the use of European-based complementary medicine modalities such as homeopathy. Little has been reported on the extent to which homeopathy is being used in the Middle-East, this despite an emerging body of basic science and clinical research on the subject from countries such as Egypt, Iran, Iraq, Israel, and Lebanon. We compare the foundations of homeopathy with those of traditional Middle-Eastern medicine in the Middle-East, and explore the possibilities of collaborative research and clinical practice. In particular, qualitative research is warranted to explore patients' expectations regarding homeopathic consultation and feasibility of its integration into Middle-Eastern health systems. Studying patient–homeopath communication patterns may be used to promote the

clinical implementation of patient-centered care, based on a bio-psycho-social-spiritual health model.

Keywords Homeopathy · Integrative medicine · Complementary and alternative medicine · Middle-East · Traditional medicine

Prolog: Naomi experiencing integrative homeopathy and palliative care

Naomi, a 70-year-old Jewish woman, married and living in a village in northern Israel, was admitted to the oncology service at the Lin Medical Center in Haifa with a diagnosis of metastatic endometrial cancer. She had begun palliative treatment with a regimen of carboplatin and paclitaxel, and was referred by her oncologist to an integrative physician (IP) working in the oncology service for consultation. The IP is a conventional physician (MD) with extensive training in complementary medicine (CM) and supportive cancer care who provides patients with information regarding the use of CM in conjunction with conventional care. Patients are then referred to a number of CM treatment modalities, with the goal of alleviating symptoms and improving quality-of-life (QOL)-related outcomes. The IP consultation and CM treatments are provided at the center without charge, and are part of an integrative oncology program provided to patients undergoing chemotherapy and/or palliative treatment.

The issues raised during Naomi's IP consultation were related to her main concerns and symptoms, with the ultimate goal of improving QOL-related outcomes. She subsequently underwent ten CM treatment sessions, this in addition to a wide range of nutritional and dietary supplements which she had been taking upon her presentation

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to the IP. These included the homeopathic remedies Traumeel (a homeopathic remedy) and Glutamine–Zinc–Aloe, which she took to reduce the severity of mouth sores; the herb *Euphrasia officinalis*, which she was taking to alleviate the sensation of eye dryness; and wheatgrass juice, which she was taking to improve cancer-related fatigue. In addition to the CM treatments, Naomi participated in a series of cuisine workshops which provide patients with hands-on experience in the use of traditional medicine herbs, as well as guided imagery and weekly acupuncture sessions. The integrative treatment regimen brought Naomi significant relief for a number of her symptoms, especially stomatitis, insomnia, and chemotherapy-induced peripheral neuropathy. She continued the CM treatments for a year (once to twice weekly).

At the end of her chemotherapy regimen, Naomi began radiation therapy for lung metastases. At this time, Naomi's main concerns included severe fatigue and dry cough, for which the IP recommended the use of Thyme- and Astragalus-based herbal formulas, with moderate improvement of fatigue but no change in the cough, which by now had become Naomi's main QOL-related concern. Naomi was consulted by a pulmonologist who prescribed gentamycin inhalations with no improvement, and she was being considered for palliative left-sided lobectomy. It was at this point that Naomi asked the IP about other alternatives, and was prescribed a homeopathic remedy aimed at alleviating her cough and tendency to hoarseness which included high dilutions of the compounds *Drosera rotundifolia*, *Cuprum metallicum*, and *Bryonia alba* (all 5CH, or 1×10^{-10}), and *Arum triphyllum* (30CH, or 1×10^{-60}). At the follow-up IP visit a week later Naomi reported an improvement in the cough, which she attributed to the homeopathic treatment. Throughout the ensuing 2 years Naomi has undergone more than 80 integrative treatment sessions, during each of which the CM practitioner reassesses her main concerns and expectations. During this period, the IP has maintained a structured communication with Naomi's oncologist, oncology nurse, psycho-oncologist, and family physician.

Patients' narratives in the context of complementary and traditional medicine in the Middle-East

Naomi's narrative characterizes the use of homeopathic remedies in one of the most challenging settings, that of cancer care. In the unique oncology setting described, homeopathy is part of an integrative oncology program which serves an integral role in a palliative treatment service and is part of a wide range of CM treatments prescribed by an integrative physician (MD). The integrative context of medical care, in which CM is provided within

the conventional “fortress” of modern medicine, is notably different from that of the more commonly seen alternative context of care being used by patients across the Middle-East [1]. In many countries in this area of the world CM is perceived by patients and health care providers as something outside of conventional care. The exclusionary approach is evident in studies which have shown low rates of patient disclosure regarding their use of CM to their physicians (e.g., only 32 % in Palestine, 41 % in Turkey) [2, 3]. Middle-Eastern physicians are often skeptical about the benefits of CM, as can be seen in a study of Jordanian physicians at the King Hussein Cancer Center, who describe these treatments as “not evidence-based” [4].

However, in recent years more and more Middle-Eastern clinicians and researchers are moving with worldwide trends regarding the recognition of CM as a research-based and feasible modality, and have called for a dialog between the two medical paradigms [5, 6]. The increasing openness toward the integration of CM into standard medical care is also based on ethical considerations, addressing patient autonomy; the physician's commitment to provide non-judgmental advice regarding the potential benefits and risks of these treatments; and public accountability, especially in countries where traditional medicine is highly correlated with the local culture and religion [7].

The evolving pluralistic approach to CM has encouraged a wide spectrum of Middle-Eastern researchers to call for the need to respect the “rights” of traditional, complementary, and alternative medical practices, this across a wide spectrum of therapeutic contexts [8]. In the Middle-Eastern contexts ethical and cross-cultural factors are central, considering the widespread use of herbals in this region as well as mind–body, spiritual, and manual therapies which are often part of traditional medical systems. In addition to the impact that local traditional medical practice has had on this process, emerging research findings and an increased interest in other traditional schools of medicine (e.g., Chinese and Ayurvedic medicine, as well as others) have encouraged researchers in the Middle-East to acknowledge the potential benefits of indigenous treatments. This is especially true for traditional Muslim healing, which is often considered as essentially Greco-Arab medicine [9].

The advancement of CM research in the Middle-East has encompassed countries with diverse cultures, each with its own geographical–botanical character: from Morocco in the West to Iran in the East; from the Turkish shores of the Black sea to the southern coasts of Saudi Arabia, Yemen and the Persian Gulf. Ancient herbal prescriptions of leading physicians in the ancient world, such as the Muslim scholar Ibn-Sina and the Jewish Rabbi Moses Ben Maimon (Maimonides) have become a focal point for contemporary research, and not just an anecdotal source of old-fashioned

potions [10]. Still, CM research in this part of the world has focused primarily on Middle-Eastern herbal practices and not on Western-oriented modalities such as homeopathy, which was founded in 19th century Europe.

In the present article, we examine the role of homeopathy within the context of an evolving acceptance of CM among Middle-Eastern medical practitioners, as well as within the framework of clinical practice and in light of the integrative process currently developing in clinical practice and research.

Homeopathy within the context of traditional medicine in the Middle-East

Homeopathy is a CM treatment modality which was established by the German physician Samuel Hahnemann in the late 18th century, and is a relatively “new” therapy from a Middle-Eastern perspective. Upon careful observation, a number of the fundamental concepts central to homeopathy are similar to those of traditional Middle-Eastern medicine. An example of this is the homeopathic Law of Similars, or ‘let like cure like’. In the book of Exodus in the Hebrew bible the prophet Moses, upon his descent from Mount Sinai with the ten commandments, discovers to his dismay that the Israelites have been worshipping the golden calf. To save his people from the wrath of God, Moses orders the destruction of the golden calf, which is then melted, ground into powder and dissolved in water which the Israelites are forced to drink [11]. The stated goal of this act is to “cleanse” the children of Israel from their idolatry, demonstrating the understanding that the cause of an affliction is also its cure (‘let like cure like’).

In ancient Greek medicine and later on in Muslim medicine, the homeopathic principle of “like cures like” often served as the paradigm for those cases where the medical practitioner uses the patient’s symptoms to decide which qualities of herbs, minerals, or animal-derived remedies were to be administered. In this process, the practitioner sets out to explore a remedy’s physical qualities, as well as its symbolic meaning to decode its medical properties. Such an approach was based historically on a series of correspondences between the Microcosmos and Macrocosmos in the ancient worlds of Greece, India (the 5-elements theory in Ayurvedic medicine), and China (Yin-Yang and the 5-phase theory) [12]. With the rise of Islamic medicine during the Middle Ages a multi-cultural medical dialog between the traditional schools of Western and Eastern medicine was set in motion. Medieval and Ottoman physicians based their medical diagnosis on a doctrine of signatures, where remedy and symptom were regarded as a mirror image of each other (i.e., the “like

cures like” principle) [13]. This symbolic and metaphoric perspective was further advanced with the rise of alchemy, in which Muslim physicians mediated between Indian, Chinese, and European concepts on the interactions between matter and process [14]. While the more common materialistic form of alchemy focused on the creation of gold from inferior materials, a parallel concept of alchemy focused on the process of metamorphosis as opposed to the ultimate outcome [15]. In this sense, a number of parallels can be found between Arab and European alchemists, the doctrine of signatures, and the second fundamental concept of homeopathy, that of the “vital force” [16].

In the modern era schools of homeopathic medicine flourished throughout Europe, the Americas, India, and many other countries across the globe. The widespread use of homeopathy can be traced in part to the Middle-East, primarily French-controlled areas of northern Africa [17]. Homeopathic clinics were also established in Israel, reflecting its orientation toward Western complementary medicine modalities, and in the Persian Gulf area, where treatment was provided to foreign workers from India. There is a limited amount of information available regarding the legislative status of homeopathy in the Middle-East, except for Israel where homeopathy and other complementary medicine treatment modalities (except hypnosis) do not require any official licensing process [18]. However, training programs in homeopathy are available for both medical (physicians, dentists, nurses, etc.) and non-medical practitioners, and are provided in non-academic colleges of complementary medicine which offer courses in both classical as well as clinical (often French- or German-oriented) homeopathy. The Israeli Association of Classic Homeopathy is one of many organizations which self-regulate the professional status of trained homeopathic practitioners in Israel, though their decisions are not legally binding [19].

Unfortunately, the literature available on the use of homeopathy in the Middle-East is limited, with few articles discussing the prevalence of this practice in Israel and the United Arab Emirates (Table 1). This contrasts significantly with other CM treatment modalities such as herbal medicine and acupuncture, which have been researched extensively. In one of the few cross-cultural surveys on the prevalence of CM use in northern Israel, a study of oncology patients found a significantly higher use of homeopathy in a cohort of Jewish patients with cancer compared to their Arab counterparts, with only 1.7 % of Arab patients reporting homeopathy use altogether [20]. The discrepancy between the widespread use of herbal medicinal and infrequent use of European-based CM modalities such as homeopathy in Middle-Eastern countries highlights the need for an in-depth study, this within a broad historical and socio-cultural context.

Table 1 Published research on homeopathy from Middle-Eastern countries

Research subject	Country of research	Study outcomes examined/results	References
Perspectives of health care practitioners	UAE	Distribution of CM specialties: Homeopaths-30 % of CM providers	Shmueli et al. [38]
		Distribution of CM treatments in pediatric otolaryngology: 36 % homeopathy among CM users	Gruber et al. [39]
		Distribution of CM treatments in rheumatology clinics: 44 % homeopathy among CM users	Breuer et al. [40]
		Self-Reported use of CM at a tertiary care center: homeopathy most commonly-used CM modality	Mathew et al. [41]
Basic science research: in vitro	Israel	Dermatologists' ability to predict CM use in patients with psoriasis relatively low.	Ben-Arye et al. [42]
	Saudi-Arabia	Knowledge of and attitudes of primary health care physicians towards CM in the Riyadh region	Abdullah Al-Rowais et al. [43]
Basic science research: in vivo (animal studies)	UAE	Attitudes of medical students and general practitioners towards CM	Hasan et al. [44]
	Iraq	Bovine sperm mitochondrial activity stimulated by homeopathic dilutions of monensin	Aziz and Enbergs [45]
Clinical research (effectiveness)	Israel	Antiviral activity observed with homeopathic remedy Engystol	Oberbaum et al. [24]
	Iran	Tarantula cubensis improves sharp ruptured tendon healing after primary repair in rabbits	Oryan et al. [22]
	Iran	Effect of Tarentula cubensis extract (Theranekron®) in foot-and-mouth disease in cattle (RCT)	Lotfollahzadeh et al. [46]
		Hypericum improves functional recovery of peripheral nerve regeneration in rats.	Mohammadi et al. [21]
		Traumeel S increased IL-1 β levels in rat sepsis model	Oberbaum et al. [25]
	Lebanon	Snake remedies and eosinophilic granuloma in cats	Aboutboul [47]
		Immunomodulatory effects of <i>Calendula officinalis</i> on three different live viruses in broiler chickens	Barbour et al. [23]
	Egypt	Homeopathic medicines may improve severity of asthma in children	Shafei et al. [33]
	Iran	Individualized homeopathy improves pain intensity and ulcer size in patients having recurrent aphthous ulceration (RCT)	Mousavi et al. [32]
		Homeopathic remedy Ignatia 30C is beneficial in the treatment of oral lichen planus (RCT)	Mousavi et al. [48]
Addition of homeopathic treatment to rehabilitation of children with spastic cerebral palsy (negative result)		Sajedi et al. [29]	
Individualized homeopathic treatment of trigeminal neuralgia: improved pain intensity and frequency of attacks		Mojaver et al. [30]	
Traumeel S for pain relief following hallux valgus surgery (RCT; negative result)		Singer et al. [31]	
Arnica montana and Bellis perennis may reduce mild postpartum bleeding (RCT)		Oberbaum et al. [26]	
Homeopathic treatment on symptoms of patients with generalized anxiety disorder (RCT; negative result)		Bonne et al. [34]	
Homeopathic remedy Traumeel S may reduce significantly severity and duration of chemotherapy-induced stomatitis in children undergoing bone marrow transplantation (RCT).		Oberbaum et al. [28]	
Safety studies	Israel	Homeopathic treatment is effective in alleviating symptoms of premenstrual syndrome (RCT)	Yakir et al. [27]
		Apparent life-threatening events in infants resulting from a homeopathic remedy	Oberbaum et al. [49]
Cost-effective outcomes	Israel	Homeopathic intervention led to a modest reduction in use of medications for allergies	Frenkel and Hermoni [50]

CM Complementary medicine, RCT randomized controlled trial, OS observational study, UAE United Arab Emirates

Research on homeopathy across the Middle-East

A list of research published on the use of homeopathy in the Middle-East is presented in Table 1. Though several studies have focused on attitudes and perspectives of health care practitioners regarding CM, the use of homeopathy as a study outcome was only marginal. Indeed, little has been published on the interaction between the physician and the homeopath, or on the dialog between the physician and the patient using homeopathy. In contrast, there is a large body of research examining the effectiveness of homeopathy, both in animal and human clinical studies. Such research has been taking place throughout the Middle-East in countries which include Egypt, Iran, Iraq, Israel, and Lebanon. Researchers have conducted animal studies of individual homeopathic remedies (e.g., *Hypericum perforatum* [21], *Tarantula cubensis* [22], *Calendula officinalis* [23]) as well as multi-component homeopathic supplements (e.g. Engystol [24], Traumeel S [25]) (Table 2).

Clinical studies have examined the effects of homeopathy in gynecology (postpartum bleeding and premenstrual syndrome) [26, 27]), hemato-oncology (chemotherapy-induced stomatitis) [28], neurology (cerebral palsy and trigeminal neuralgia) [29, 30], orthopedics (hallux valgus surgery) [31], oral health (stomatitis, aphthous ulcerations) [28, 32], pediatrics (cerebral palsy, asthma,) [29, 33], and psychiatry (generalized anxiety disorder) [34]. Researchers have also addressed related issues, such as the safety of

homeopathic treatment in infants [35] and conducted a cost-effective analysis in atopic patients.

Research objectives for homeopathy in the Middle-East

Although currently limited, research on homeopathy in the Middle-East is advancing and is expected to spread throughout the region. There is therefore a need for a multinational study which will examine the prevalence of homeopathy use, including homeopathic consultations and over-the-counter self-use of remedies as a primary outcome parameter. In addition, qualitative research on the use of homeopathy in settings such as cancer treatment may provide further insight into patient expectations and motivation for seeking out this modality, as well as the attitudes of health care professionals responsible for their care.

While the question of how homeopathy can induce physiological processes using compounds which have often been diluted well past Avogadro’s number (i.e., the number of units in mole of a substance, or 6.02×10^{-23}) is important, research on homeopathy may extend our understanding on patient-centered care. In the UK, Brien et al. [36] studied the clinical benefits of homeopathy in rheumatoid arthritis patients and concluded that it is the consultation process and not the homeopathic remedy which improves patients’ symptoms. In a subsequent study, the same group of researchers analyzed the themes

Table 2 Frequently used Middle-Eastern traditional herbal and homeopathic remedies

Traditional herb (scientific name)	Homeopathic remedy	Clinical indications		Research on herb/remedy effectiveness	Potential for collaborative research
		Middle-Eastern traditional medicine	Clinical homeopathy [51]		
<i>Arum palaestinum</i> Boiss.	<i>Arum triphyllum</i>	Considered in traditional Arab medicine as an anti-cancer herb and diuretic [52]	Hoarseness	Plant-derived alkaloids suppress proliferation of breast and lymphoblastic leukemia cells [53]	Oncology
<i>Allium cepa</i>	<i>Allium cepa</i>	Treating common cold [54]	Rhinorrhea	Inhibition of tumor promotion in mouse model [55] Anti-allergic activity [56]	Allergy
<i>Matricaria recutita</i> L.	<i>Chamomilla matricaria</i>	Alleviates intestinal pain and irregularity; reduces toothache [57]	Otitis	Healing action of topical chamomile on 5-fluoracil-induced oral mucositis in hamsters [58].	Pediatrics Ear Nose Throat
<i>Ruta chalepensis</i> <i>Ruta graveolens</i>	<i>Ruta graveolens</i>	Rheumatism and arthritis [57]	Tendinitis	Anti-inflammatory activities [59]	Rheumatology
<i>Urtica dioica</i> L.	<i>Urtica urens</i>	Alleviation of stomach ache, rheumatic pain, common cold, liver disease; healing of cancer-related wounds [57]	Urticaria	Anti-proliferative effects on human prostate cancer cells [60]	Urology Oncology Rheumatology

Clinical indications refer to a French-centered homeopathic approach. They do not represent the patient-tailored approach practiced in classical homeopathy

associated with enhanced coping and well-being, and found an increased awareness following the exploration of the narrative of illness [37].

An additional area of research which needs to be examined is the integration of homeopathic and traditional herbal medicine in Middle-Eastern countries. Table 2 presents the integration of these two treatment modalities, showing traditional herbals which are often administered as homeopathic remedies. Studies examining the cost-effectiveness and safety of homeopathic medicine should be conducted as well, especially in this part of the world, where sub-optimal medical care is often present.

Epilogue

The case of Naomi, a cancer patient treated with both conventional and homeopathic supportive care in an integrative oncology setting, should encourage research of this treatment modality. Her case also emphasizes the need for clinicians, researchers, and medical educators to develop a more patient-centered approach, with an awareness of patients' health belief models as well as their traditional medicine legacy.

Conflict of interest The authors declare that they have no conflict of interest.

References

- Shuval JT, Mizrahi N, Smetannikov E (2002) Entering the well-guarded fortress: alternative practitioners in hospital settings. *Soc Sci Med* 55(10):1745–1755
- Ali-Shtayeh MS, Jamous RM, Jamous RM (2012) Complementary and alternative medicine use amongst Palestinian diabetic patients. *Complement Ther Clin Pract*. 18(1):16–21
- Yildiz I, Ozguroglu M, Toptas T, Turna H, Sen F, Yildiz M (2013) Patterns of complementary and alternative medicine use among Turkish cancer patients. *J Palliat Med*. 16(4):383–390
- Al-Omari A, Al-Qudimat M, Abu Hmaidan A, Zaru L (2013) Perception and attitude of Jordanian physicians towards complementary and alternative medicine (CAM) use in oncology. *Complement Ther Clin Pract* 19(2):70–76
- Ben-Arye E, Frenkel M, Klein A, Scharf M (2008) Attitudes toward integration of complementary and alternative medicine in primary care: perspectives of patients, physicians and complementary practitioners. *Patient Educ Couns* 70(3):395–402
- Popper-Giveon A, Schiff E, Ben-Arye E (2013) We and they in the house of healing: debate among Arab complementary medicine practitioners on an integrative versus alternative approach to supportive cancer care. *Integr Cancer Ther* 12(6):488–495
- Ben-Arye E, Schiff E, Golan O (2008) Ethical issues in integrative oncology. *Hematol Oncol Clin North Am*. 22(4):737–753
- Stuttaford M, Al Makhameh S, Coomans F, Harrington J, Himonga C, Hundt GL (2014) The right to traditional, complementary, and alternative health care. *Glob Health Action* 7:24121
- Zaid H, Silbermann M, Ben-Arye E, Saad B (2012) Greco-arab and islamic herbal-derived anticancer modalities: from tradition to molecular mechanisms. *Evid Based Complement Alternat Med*. 2012:349040
- Ben-Arye E, Massalha E, Bar-Sela G, Silbermann M, Agbarya A, Saad B, Lev E, Schiff E (2014) Stepping from traditional to integrative medicine: perspectives of Israeli-Arab patients on complementary medicine's role in cancer care. *Ann Oncol* 25(2):476–480
- Exodus (1994), 21st Century King James Version. Deuel Enterprises, Inc. 32:20
- Moss CA (1999) Five element acupuncture: treating body, mind, and spirit. *Altern Ther Health Med* 5(5):52–61
- Lev E (2002) The doctrine of signatures in the medieval and Ottoman Levant. *Vesalius* 8(1):13–22
- Brandenburg D (1975) Alchemy and medicine. Therapeutics in ancient times and in the Islamic middle ages (II). *Med Monatsschr* 29(1):25–28
- Schott H (1993) The therapeutics of Paracelsus with reference to natural philosophy, alchemy and psychology. *Sudhoffs Arch Z Wissenschaftsgesch Beih* 31:25–41
- Richardson-Boedler C (2000) The doctrine of signatures: a historical, philosophical, scientific view (II). *Br Homeopath J* 89(1):26–28
- Ségal A, Trépardoux F (2005) The amazing career of a homeopath, philanthropist, Fourierist, Benoît-Jules Mure. (1809–1858). *Hist Sci Med* 39(2):131–141
- Keshet Y, Ben-Arye E (2011) Which complementary and alternative medicine modalities are integrated within Israeli health-care organizations and do they match the public's preferences? *Harefuah* 150(8):635–638, 690, 689
- Internet site: <http://homeopathy-israel.co.il/category/%d7%90%d7%96%d7%95%d7%a8-%d7%9c%d7%94%d7%95%d7%9e-%d7%90%d7%95%d7%a4%d7%aa%d7%99%d7%9d/c43-2009-08-05-18-43-39/> Accessed 6 Oct 2014
- Ben-Arye E, Massalha E, Bar-Sela G, Silbermann M, Agbarya A, Saad B, Lev E, Schiff E (2014) Stepping from traditional to integrative medicine: perspectives of Israeli-Arab patients on complementary medicine's role in cancer care. *Ann Oncol* 25(2):476–480
- Mohammadi R, Amini K, Charehsaz S (2012) Homeopathic treatment for peripheral nerve regeneration: an experimental study in a rat sciatic nerve transection model. *Homeopathy* 101(3):141–146
- Oryan A, Moshiri A, Meimandi Parizi A (2012) Alcoholic extract of tarantula cubensis improves sharp ruptured tendon healing after primary repair in rabbits. *Am J Orthop (Belle Mead NJ)* 41(12):554–560
- Barbour EK, Sagherian V, Talhouk S, Talhouk R, Farran MT, Sleiman FT, Harakeh S (2004) Evaluation of homeopathy in broiler chickens exposed to live viral vaccines and administered *Calendula officinalis* extract. *Med Sci Monit* 10(8):BR281–BR285
- Oberbaum M, Glatthaar-Saalmüller B, Stolt P, Weiser M (2005) Antiviral activity of Engystol: an in vitro analysis. *J Altern Complement Med* 11(5):855–862
- Oberbaum M, Spira RM, Lukasiewicz E, Armon Y, Samuels N, Singer SR, Barak V, Izbicki G, Einav S, Hersch M (2011) Effect of Traumeel S on cytokine profile in a cecal ligation and puncture (CLP) sepsis model in rats. *J Altern Complement Med* 17(10):909–913
- Oberbaum M, Galoyan N, Lerner-Geva L, Singer SR, Grisaru S, Shashar D, Samueloff A (2005) The effect of the homeopathic remedies *Arnica montana* and *Bellis perennis* on mild postpartum bleeding—a randomized, double-blind, placebo-controlled study—preliminary results. *Complement Ther Med* 13(2):87–90
- Yakir M, Kreidler S, Brzezinski A, Vithoulkas G, Oberbaum M, Bentwich Z (2001) Effects of homeopathic treatment in women

- with premenstrual syndrome: a pilot study. *Br Homeopath J* 90(3):148–153
28. Oberbaum M, Yaniv I, Ben-Gal Y, Stein J, Ben-Zvi N, Freedman LS, Branski D (2001) A randomized, controlled clinical trial of the homeopathic medication Traumeel S in the treatment of chemotherapy-induced stomatitis in children undergoing stem cell transplantation. *Cancer* 92(3):684–690
 29. Sajedi F, Alizad V, Alaeddini F, Fatemi R, Mazaherinezhad A (2008) The effect of adding homeopathic treatment to rehabilitation on muscle tone of children with spastic cerebral palsy. *Complement Ther Clin Pract* 14(1):33–37
 30. Mojaver YN, Mosavi F, Mazaherinezhad A, Shahrardar A, Manshaee K (2007) Individualized homeopathic treatment of trigeminal neuralgia: an observational study. *Homeopathy* 96(2):82–86
 31. Singer SR, Amit-Kohn M, Weiss S, Rosenblum J, Maoz G, Samuels N, Lukasiewicz E, Freedman L, Paltiel O, Itzhaki M, Niska M, Oberbaum M (2010) Traumeel S for pain relief following hallux valgus surgery: a randomized controlled trial. *BMC Clin Pharmacol* 10:9
 32. Mousavi F, Mojaver YN, Asadzadeh M, Mirzazadeh M (2009) Homeopathic treatment of minor aphthous ulcer: a randomized, placebo-controlled clinical trial. *Homeopathy* 98(3):137–141
 33. Shafei HF, AbdelDayem SM, Mohamed NH (2012) Individualized homeopathy in a group of Egyptian asthmatic children. *Homeopathy*. 101(4):224–230
 34. Bonne O, Shemer Y, Goral Y, Katz M, Shalev AY (2003) A randomized, double-blind, placebo-controlled study of classical homeopathy in generalized anxiety disorder. *J Clin Psychiatry* 64(3):282–287
 35. Aviner S, Berkovitch M, Dalkian H et al (2010) Use of a homeopathic preparation for “infantile colic” and an apparent life-threatening event. *Pediatrics* 125:e318–e323
 36. Brien S, Lachance L, Prescott P, McDermott C, Lewith G (2011) Homeopathy has clinical benefits in rheumatoid arthritis patients that are attributable to the consultation process but not the homeopathic remedy: a randomized controlled clinical trial. *Rheumatology (Oxford)* 50(6):1070–1082
 37. Brien SB, Leydon GM, Lewith G (2012) Homeopathy enables rheumatoid arthritis patients to cope with their chronic ill health: a qualitative study of patient’s perceptions of the homeopathic consultation. *Patient Educ Couns* 89(3):507–516
 38. Shmueli A, Igudin I, Shuval J (2011) Change and stability: use of complementary and alternative medicine in Israel: 1993, 2000 and 2007. *Eur J Public Health* 21(2):254–259
 39. Gruber M, Ben-Arye E, Kerem N, Cohen-Kerem R (2014) Use of complementary alternative medicine in pediatric otolaryngology patients: a survey. *Int J Pediatr Otorhinolaryngol* 78(2):248–252
 40. Breuer GS, Orbach H, Elkayam O, Berkun Y, Paran D, Mates M, Neshet G (2006) Use of complementary and alternative medicine among patients attending rheumatology clinics in Israel. *Isr Med Assoc J* 8(3):184–187
 41. Mathew E, Muttappallymyalil J, Sreedharan J, John L, John J, Mehboob M, Mathew A (2013) Self-reported use of complementary and alternative medicine among the health care consumers at a tertiary care center in Ajman, United Arab Emirates. *Ann Med Health Sci Res* 3(2):215–219
 42. Ben-Arye E, Ziv M, Frenkel M, Lavi I, Rosenman D (2003) Complementary medicine and psoriasis: linking the patient’s outlook with evidence-based medicine. *Dermatology* 207(3):302–307
 43. Abdullah Al-Rowais N, Al Bedah AM, Khalil MK, El Oleyy AT, Khalil AA, Alrasheid MH, Al Khashan H, Al Yousef M, Abdel Razak Ba Fart A (2012) Knowledge and attitudes of primary health care physicians towards complementary and alternative medicine in the Riyadh region, Saudi Arabia. *Forsch Komplementmed* 19(1):7–12
 44. Hasan MY, Das M, Behjat S (2000) Alternative medicine and the medical profession: views of medical students and general practitioners. *East Mediterr Health J* 6(1):25–33
 45. Aziz DM, Enbergs H (2005) Stimulation of bovine sperm mitochondrial activity by homeopathic dilutions of monensin. *Homeopathy* 94(4):229–232
 46. Lotfollahzadeh S, Alizadeh MR, Mohri M (2012) Mokhber Dezfouli MR. The therapeutic effect of *Tarentula cubensis* extract (Theranekron®) in foot-and-mouth disease in cattle: a randomised trial in an endemic setting. *Homeopathy* 101(3):159–164
 47. Aboutboul R (2006) Snake remedies and eosinophilic granuloma complex in cats. *Homeopathy* 95(1):15–19
 48. Mousavi F, Sherafati S, Mojaver YN (2009) Ignatia in the treatment of oral lichen plan. *Homeopathy* 98(1):40–44
 49. Oberbaum M, Samuels N, Ben-Arye E, Amitai Y, Singer SR (2012) Apparent life-threatening events in infants and homeopathy: an alternative explanation. *Hum Exp Toxicol* 31(1):3–10
 50. Frenkel M, Hermoni D (2002) Effects of homeopathic intervention on medication consumption in atopic and allergic disorders. *Altern Ther Health Med* 8(1):76–79
 51. Jouanny J (1985) The essentials of homeopathic therapeutics. Laboratories Boiron, France
 52. Muntner S (1963) Saladinod’Ascoli (ed) Book of the pharmacists (1430). (in Hebrew). Tel-Aviv, p 95
 53. El-Desouky SK, Kim KH, Ryu SY, Eweas AF, Gamal-Eldeen AM, Kim YK (2007) A new pyrrole alkaloid isolated from *Arum palaestinum* Boiss. and its biological activities. *Arch Pharm Res* 30(8):927–931
 54. Lev E, Amar Z (2002) Ethnopharmacological survey of traditional drugs sold in the Kingdom of Jordan. *J Ethnopharmacol* 82(2–3):131–145
 55. Belman S (1983) Onion and garlic oils inhibit tumor promotion. *Carcinogenesis* 4:1063–1065
 56. Kaiser P, Youssouf MS, Tasduq SA, Singh S, Sharma SC, Singh GD, Gupta VK, Gupta BD, Johri RK (2009) Anti-allergic effects of herbal product from *Allium cepa*. *J Med Food* 12(2):374–382
 57. Ali-Shtayeh MS, Yaniv Z, Mahajna J (2000) Ethnobotanical survey in the Palestinian area: a classification of the healing potential of medicinal plants. *J Ethnopharmacol* 73(1–2):221–232
 58. Pavesi VC, Lopez TC, Martins MA (2011) Sant’Ana Filho M, Bussadori SK, Fernandes KP, Mesquita-Ferrari RA, Martins MD. Healing action of topical chamomile on 5-fluoracil induced oral mucositis in hamster. *Support Care Cancer* 19(5):639–646
 59. Katagi MS, Kakoti BB, Bhuyan B, Rajkumari A, Rajak P (2014) Garden rue inhibits the arachidonic acid pathway, scavenges free radicals, and elevates FRAP: role in inflammation. *Chin J Nat Med* 12(3):172–179
 60. Konrad L, Müller HH, Lenz C, Laubinger H, Aumüller G, Lichius JJ (2000) Antiproliferative effect on human prostate cancer cells by a stinging nettle root (*Urtica dioica*) extract. *Plant Med* 66(1):44–47